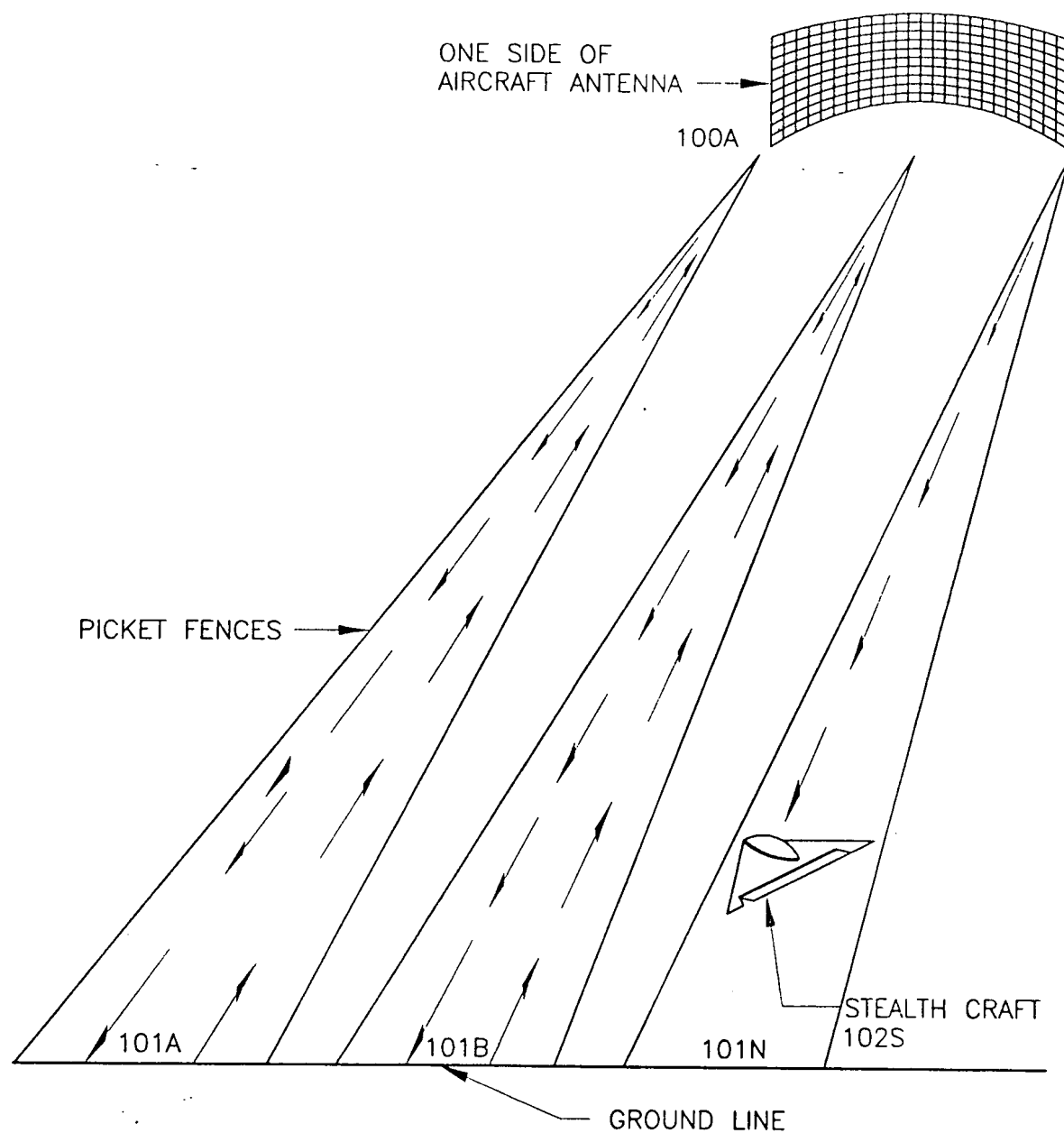


00/040/0454560



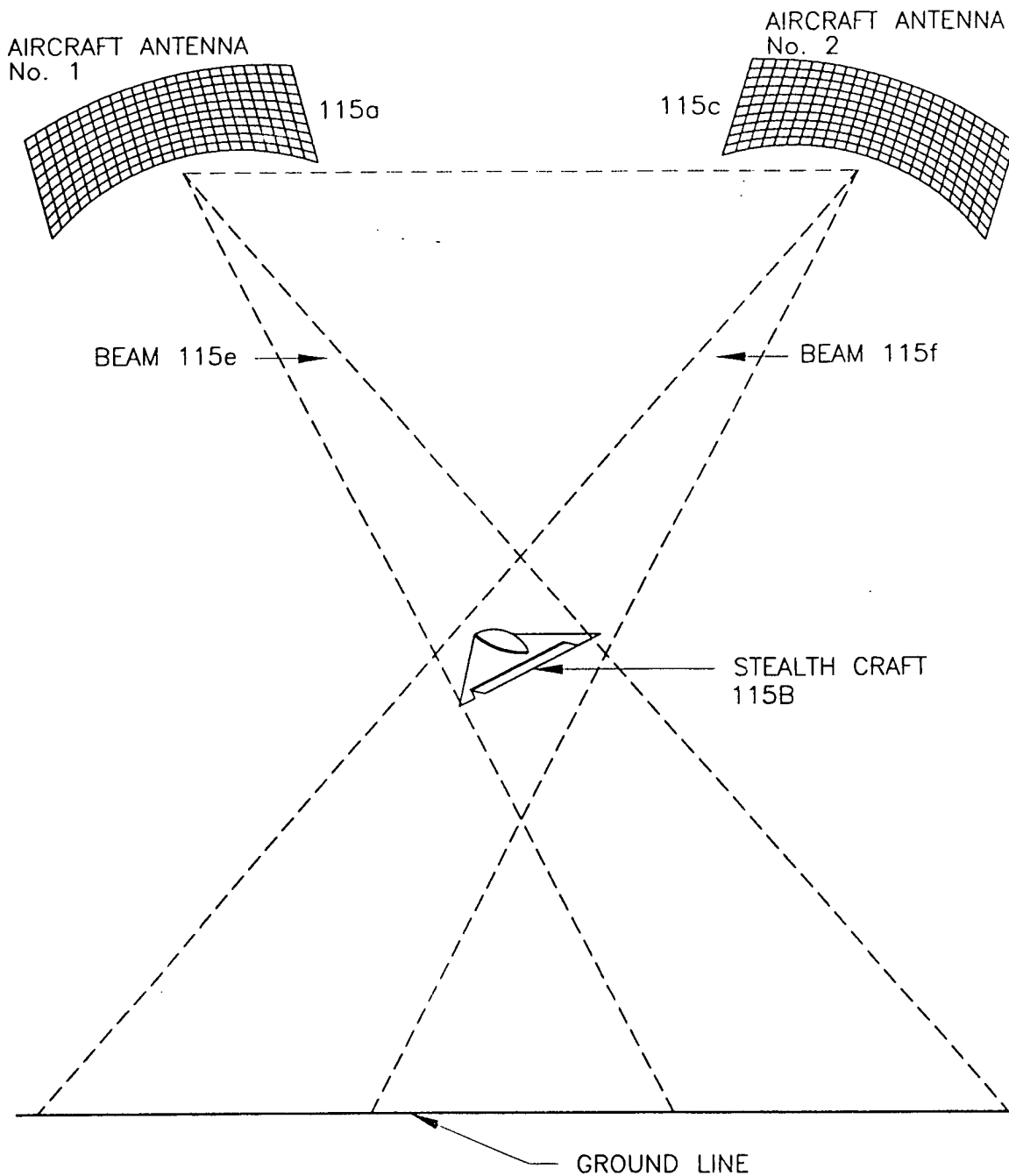
ELECTRONIC PICKET FENCES

FIG. 1

The diagram illustrates a beam steering system. At the top right, a curved grid represents 'ONE SIDE OF AIRCRAFT ANTENNA 110A'. A series of lines radiate from this antenna towards the bottom left. These lines are labeled from left to right as 'BEAM 1 (110A)', 'BEAM 2', and 'BEAM 3 (110B)'. A dashed line on the far left is labeled 'ONE PICKET FENCE'. A solid horizontal line at the bottom is labeled 'GROUND LINE'. A 'STEALTH CRAFT 110C' is shown flying between the ground line and the picket fence, with an arrow pointing to it. A horizontal double-headed arrow labeled 'Z' indicates a distance or range. The diagram shows how the beams from the antenna can be directed to track a target (the stealth craft) even when it is behind a picket fence.

DETECTING A STEALTH CRAFT WITH A SINGLE TRANSMITTER/RECEIVER

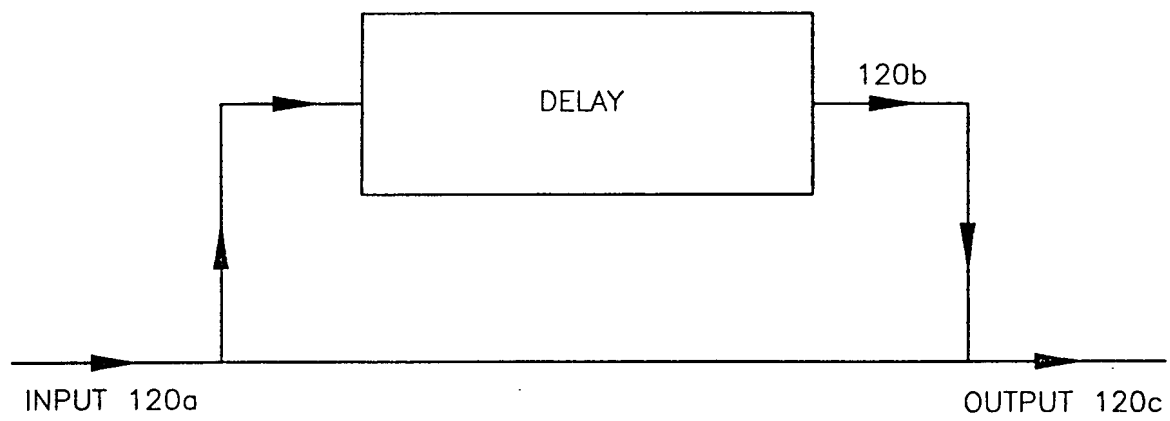
FIG. 2



DETECTING DISTANCE TO STEALTH CRAFT
BY TRIANGULATION

FIG. 3

1/2 WAVELENGTH OR MULTIPLE OF 1/2 WAVE LENGTH



CANCELLATION

FIG. 4

Background Cancellation and Leading and Trailing Edge Detection

	Current ground reflection i.e., Signal from current time	Previous ground reflection- Signal from current Time minus delay	Resulting Signal
Ground	S	S	NS
Leading edge air boundary	S	S	NS
Leading edge of craft	NS	S	S
Middle of craft	NS	NS	NS
Trailing edge of craft	NS	NS	NS
Trailing edge air boundary	S	NS	S
S = Signal			
NS = No Signal			

Fig. 5

Background Cancellation and Making a Silhouette White

	Current ground reflection i.e., Signal from current time time	Previous ground reflection Signal from time before stealth detected	Resulting Signal
Ground	S	S	NS
Leading edge air boundary	S	S	NS
Leading edge of craft	NS	S	S
Middle of craft	NS	S	S
Trailing edge of craft	NS	S	S
Trailing edge air boundary	S	S	NS
S = Signal			
NS = No Signal			

Fig. 6

Background Cancellation and Making a Shadow White Shadow

Area	Pre-Stealth Craft Signal (delayed reflection)	Current Signal (Current reflection)	Result
Current Shadow	Signal	No Signal	Signal
Non-Shadow	Signal	Signal	No Signal

Fig. 7

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FIG. 8

RECEIVER 140R

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DISTANCE 140D

BEAM 140M

BEAM 140N

RECEIVER BEAM 140T

RECEIVER BEAM 140U

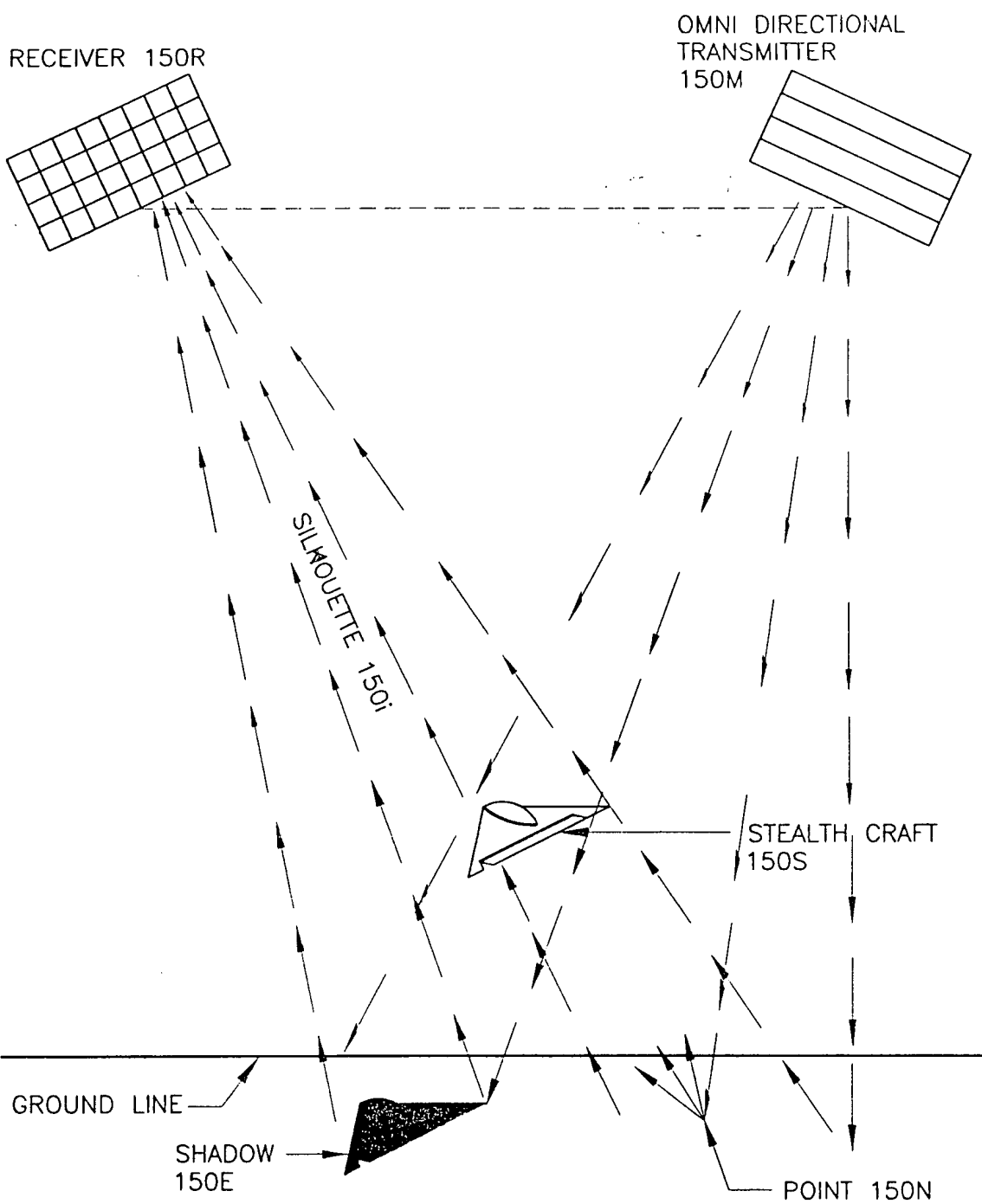
- STEALTH CRAFT
140S

GROUND LINE

SHADOW
140F

SHADOW
140E

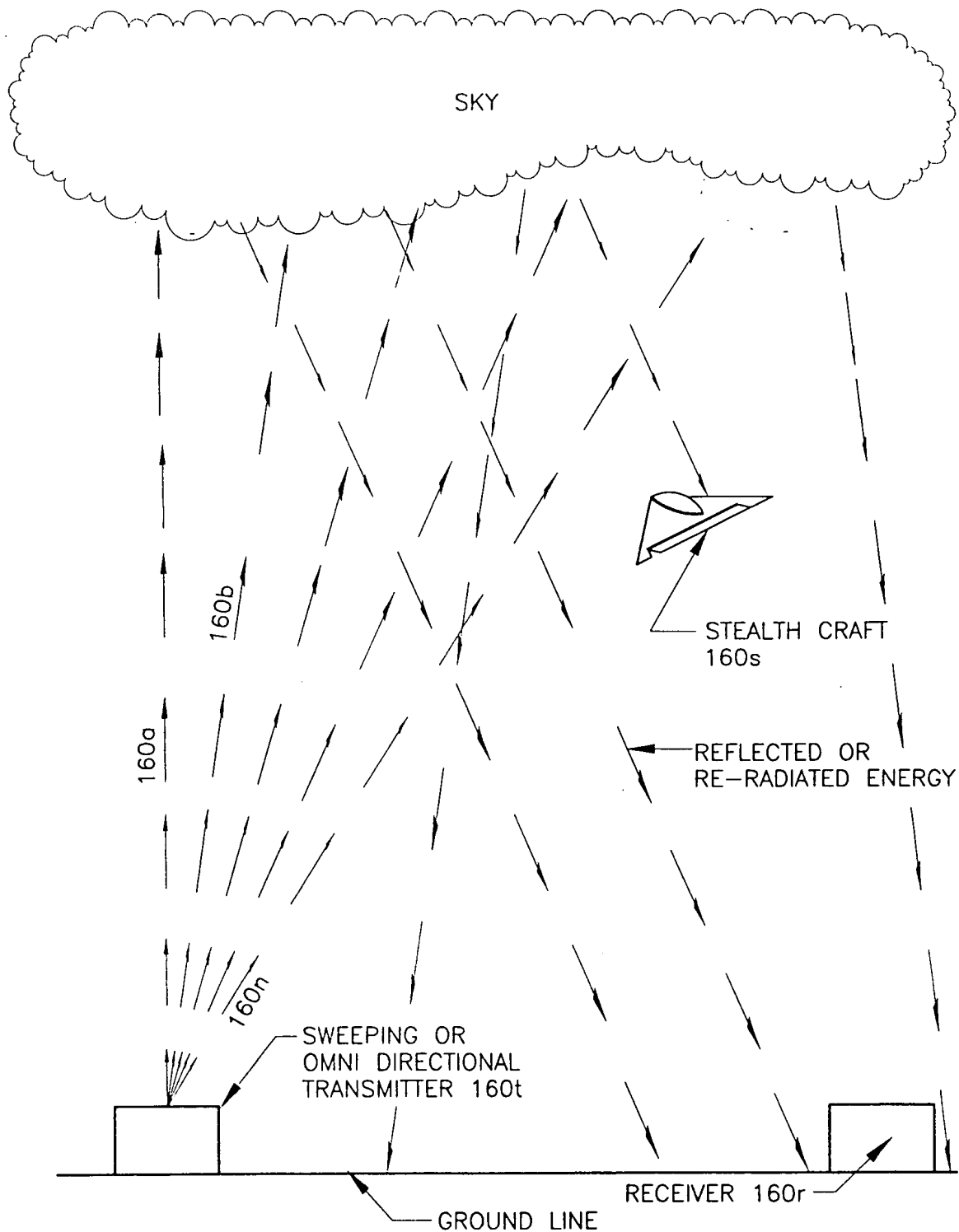
DETECTION AND DISTANCE DETERMINATION WITH
TWO TRANSMITTERS AND ONE RECEIVER USING SHADOWS
FIG. 9



DETECTION AND DISTANCE DETERMINATION WITH ONE TRANSMITTER AND ONE RECEIVER USING BOTH SILHOUETTE AND SHADOW

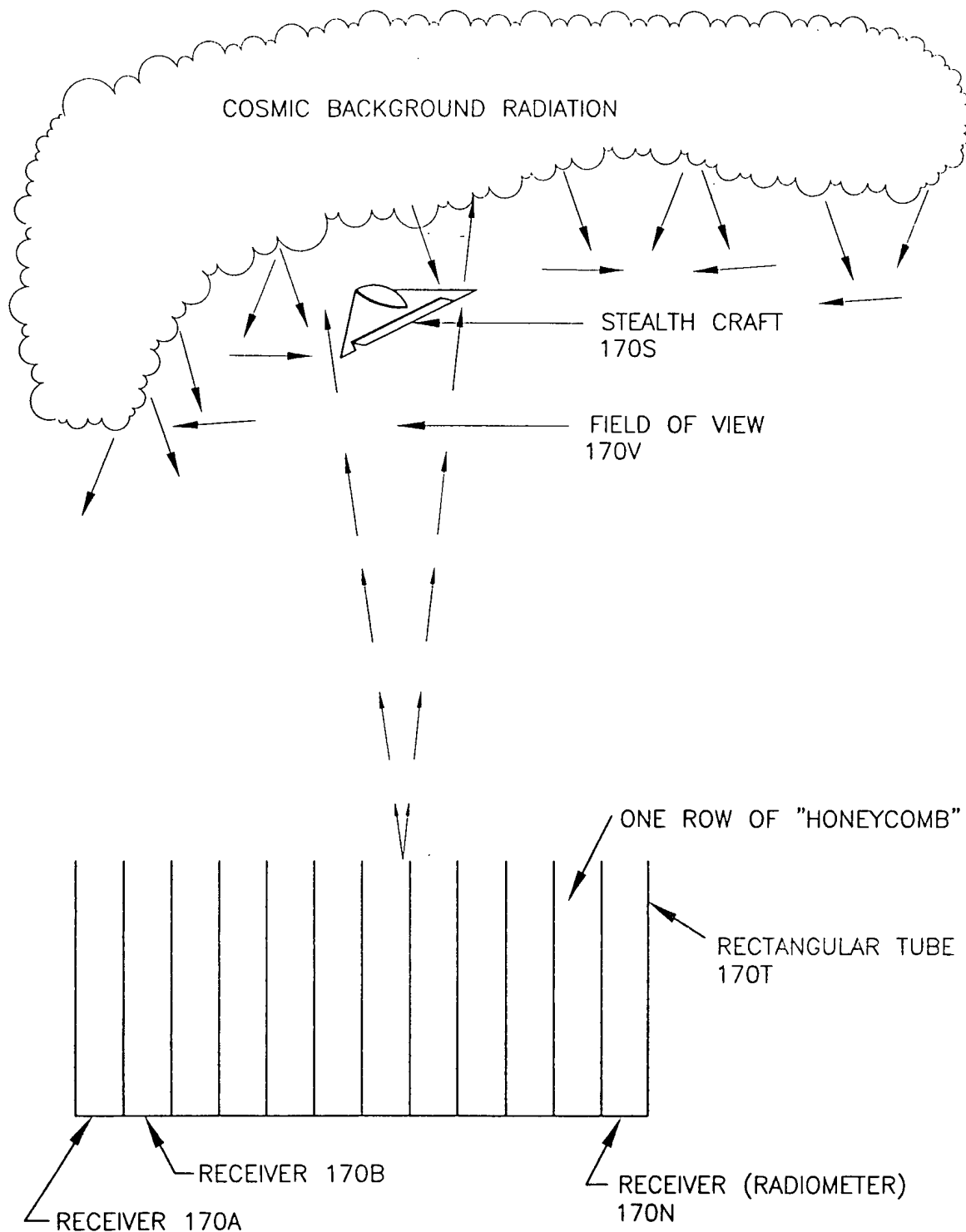
FIG. 10

SECRET

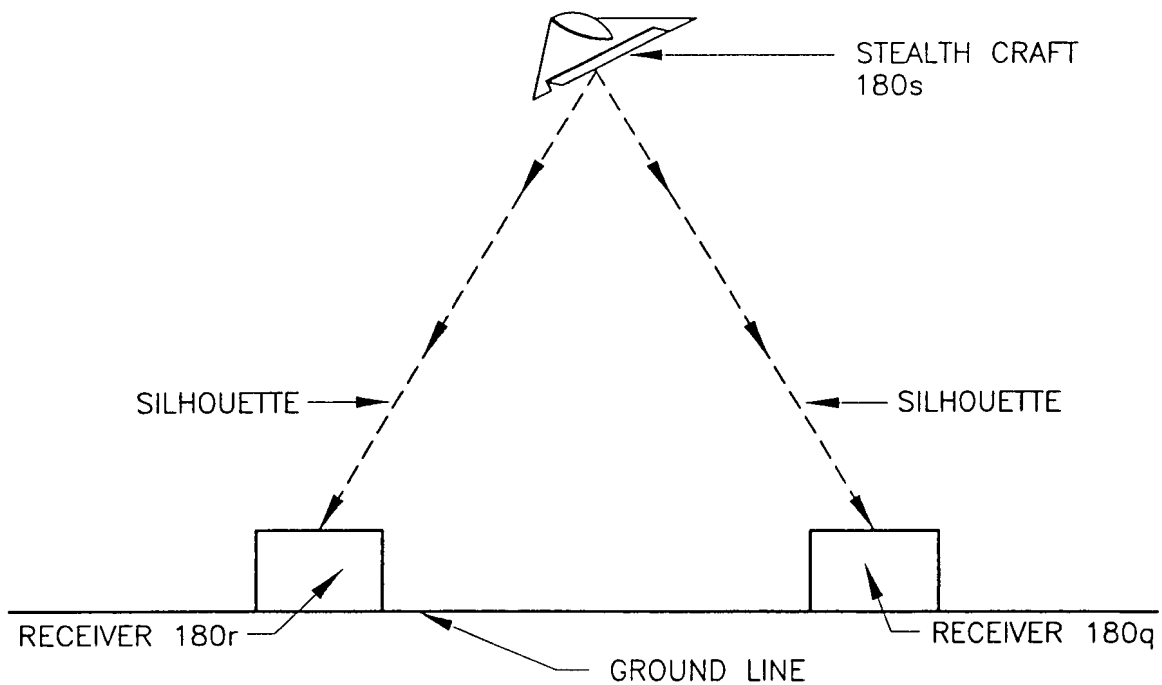


DETECTION OF STEALTH CRAFT USING
THE SKY AS "REFLECTOR"

FIG. 11



DETECTION OF STEALTH CRAFT USING
COSMIC BACKGROUND RADIATION
FIG. 12



PASSIVE (BACKGROUND) DISTANCE DETERMINATION
DISTANCE DETERMINATION WITH COSMIC
BACKGROUND RADIATION

FIG. 13